

April 11, 1985

Docket No. 50-280

Mr. W. L. Stewart
Vice President - Nuclear Operations
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

Distribution

Docket file

L PDR	NRC PDR
HThompson	ORB#1 RDG
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Dear Mr. Stewart:

By letter dated February 1, 1985, you requested reliefs regarding the hydrostatic testing of main steam system and steam generator blowdown piping in Surry Unit No. 1. Your request has been granted.

The reliefs permit you to perform hydrostatic testing at a pressure lower than that required by the ASME Code-Section XI, for certain welds made in the replacement of 1 1/2 inch steam trap drain valve 1-MS-107, and to substitute alternative inspection for hydrostatic testing, for certain welds made in the replacement of six 2 1/2 inch steam generator blowdown root valves. The enclosed Safety Evaluation provides the details and conclusions of our review.

For the reliefs that have been granted, we have determined that the code requirements are impractical and that the relief requests are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

The request for reliefs complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I.

Sincerely,

/s/SAVarga

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

*SEE PREVIOUS WHITE FOR CONCURRENCE

ORB#1:DL*
CParrish
04/01/85

ORB#1:DL*
KJohnston/ts
04/01/85

ORB#1:DL
DNeighbors
04/01/85

ADVICE
WJohnston
04/01/85

BC-ORB#1:DL
SVarga
04/01/85

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PDR ADDOCK 05000280
P PDR

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CParrish *CP*
04/1/85

ORB#1:DL *KA*
KJohnston/ts
04/1/85

ORB#1:DL
DNeighbors
04/1/85

AD:MCET
WJohnston
04/1/85

BC-ORB#1:DL
SVarga
04/1/85



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 11, 1985

Docket No. 50-280

Mr. W. L. Stewart
Vice President - Nuclear Operations
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

Dear Mr. Stewart:

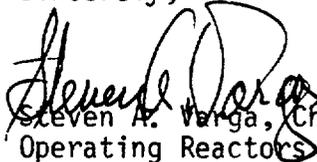
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Operating Reactors Branch #1
Division of Licensing

Enclosure:
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cc w/enclosure:
See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ENCLOSURE

SAFETY EVALUATION
SURRY POWER STATION UNIT 1, DOCKET NUMBER 50-280
REQUEST FOR RELIEF FROM ASME SECTION XI
HYDROSTATIC TEST REQUIREMENTS FOR WELD REPAIRS

Introduction

This report provides a safety evaluation of a request for reliefs from a specific hydrostatic testing requirement applicable to a post repair examination on Surry Unit 1 main steam system and steam generator blowdown piping. The request was submitted by Virginia Electric and Power Company (the licensee) in a letter dated February 1, 1985.

The bases for the requirements from which reliefs have been requested and for granting the reliefs are derived from the Code of Federal Regulations, 10 CFR 50.55a(g). The subject regulations specify that inservice examinations and tests be performed on nuclear power facilities, such as Surry Unit 1, in accordance with the requirements of Section XI of the ASME Boiler and Pressure Vessel Code (ASME Section XI), 1980 edition, winter 1980 addenda. ASME Section XI provides requirements for hydrostatic testing of piping after repairs and replacements. 10 CFR 50.55a(g)(6)(i) states that the Commission may grant relief from the ASME Section XI requirements when they are determined impractical for a facility, provided the Commission determines that the granting of the relief is authorized by law, will not endanger life or property or the common defense and security and that it is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. The specific ASME Section XI requirements from which reliefs have been requested, the reliefs requested, the basis for the relief requests, and the NRC staff's evaluation and conclusions are described below.

ASME Section XI Requirements

ASME Section XI, Subsection IWA 4400(a) requires hydrostatic testing of ASME Class 2 piping repaired by welding. Subsection IWC-5000 provides criteria for determining the required test pressure for performing the post repair hydrostatic tests on the piping. For testing the welded repair installation of ASME Class 2 valves 1-MD-107, a steam trap drain valve, and 1-BD-4, 1-BD-11, 1-BD-14, 1-BD-21, and 1-BD-24, blow down root valves, in Surry Unit 1 main steam system piping, the IWC-5000 criteria specify a test pressure of 1.25 times system pressure. IWC-5000 states that the system pressure shall be the lowest pressure setting among the number of safety or relief valves provided for overpressure protection within the boundary of the system to be tested. The system pressure for the piping containing these valves is 1085 psig and, thus, the test pressure is required to be 1356 psig.

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Discussion

- 1) The licensee requested relief to accept performance of the hydrostatic test of weld repairs in ASME Class 2 valve 1-MS-107 in the Unit 1 main steam system piping at 1145 psig, rather than the ASME Section XI required 1356 psig. Valve 1-MS-107 is a 1 1/2 inch ASME Class 2 main steam system valve that functions in a steam trap drain capacity. During the 1984 refueling outage, the licensee performed a post-replacement hydrostatic test on the valve using the nearest adjacent valves as the test boundary. In performing the test they were unable to obtain the required test pressure of 1356 psig due to internal leakage through test boundary valves, probably the result of internal steam cutting or corrosion, which is common in the steam trap application. A test pressure of 1145 psig was reached using the station's auxiliary feedwater pump. As no back-up isolation valves exist, complete pressurization of the "B" steam generator would be necessary to test the replaced valve at the required pressure.

The licensee made the decision to conduct a visual (VT-2) examination and a surface (liquid penetrant) examination at the lower pressure. The inspection revealed no indications.

- 2) The licensee requested relief from hydrostatic testing of six 2 1/2 inch steam generator blowdown root valves (1-BD-1, 1-BD-4, 1-BD-11, 1-BD-14, 1-BD-21, 1-BD-24). These valves are subjected to severe environments of water and steam mixtures resulting in steam cuts, packing leaks and internal isolation problems. The valves were replaced during the 1984 refueling outage to provide a more serviceable design and to correct the problems noted. The removal of the adjoining piping sections was conducted at the steam generator nozzles and at an arbitrary weld downstream of the replacement valves.

ASME Section XI requires that the welds involved be hydrostatic tested. This test would include within its test boundaries the unit's steam generators as no intermediate isolation exists.

The licensee made a decision to conduct alternative inspections of these valves. The new butt welds upstream of the replaced valves were examined with visual (VT-1), surface (liquid penetrant), and volumetric (radiography) examinations. The nozzle connections are socket welded, thus precluding volumetric examination. A system functional test (IWC-5221) with the corresponding visual (VT-2) was substituted for these connections.

NRC Staff Evaluation and Conclusions

In evaluating the licensee's request, the staff has taken into consideration the location, size and function of the involved piping; the alternate testing performed by the licensee, and the measures that would have been necessary to achieve the full specified test pressure. Based on its evaluation of these factors, the staff finds that the original test pressure requirement was impractical for the given situation and that

granting of the requested relief is authorized by law, will not endanger life or property or the common defense and that it is otherwise in the public interest. The relief requested is hereby granted.

Principal Contributor:

Ken Johnston